WINCOR NIXDORF

BA92/BA93/BA93W

LCD TFT Panel Display

User Manual

We would like to know your opinion on this publication.

Please send us a copy of this page if you have any constructive criticism.
We would like to thank you in advance for your comments.
With kind regards.

Your Opinion:

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BA92/BA93/BA93W

LCD TFT Flat Panel Display

User Manual

Edition September 2015

Contents

Manufacturer’s declaration and approval

General authorization

This device complies with the requirements of the di rective 2004/108/EC with regard to “Electromagnetic Compatibility” and 2006/95/EC "Low Voltage Directive" and RoHS directive 2011/65/EU.

Therefore, you will find the CE mark on the device or packaging.

FCC-Class A Declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his expense.

Modifications not authorized by the manufacturer may void users’ authority to operate this device.

This class A digital apparatus complies with Canadian ICES-003.
Cet appareil numerique de la classe A est conforme à la norme NMB-003 du Canada.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference, including interference that may cause undesired operation.

Tested safety

The BA92/BA93/BA93W have been awarded the cUL- and UL- symbol.

Energy Star

The BA92/BA93/BA93W have been awarded the ENERGY STAR symbol.

User information

Repair work on the devices should only be carried out by authorized and specially trained personnel. Improper repairs will lead to the loss of any guarantee and liability claims.

Extension boards with electrostatically endangered components can be identified with this label.

Safety information

This device conforms to the corresponding safety regulations for information technology devices, including electronic office machines for use in the office environment.

- If the device is moved from a cold environment to a warmer room where it is to be operated, condensation could occur. The device must be completely dry before being put into operation. Therefore an acclimatization time of at least two hours should be accounted for.
- Lay all cables and supply lines so that nobody can tread on them or trip over them.
- Data cables should neither be connected nor removed during electrical storms.
- Protect the device from vibrations, dust, moisture and heat, and only transport the device in its original packaging (to protect it against

impact and blows).

- Take care to ensure that no foreign objects (e.g. paper clips) or liquids can get into the inside of the device, as this could cause electrical shocks or short circuits.
- In case of emergencies (e.g. damaged housing, liquid or foreign objects getting into the device), the device should be switched off immediately, the mains plug of the BEETLE or PC should be removed, and the Wincor Nixdorf customer service should be contacted.

If the LCD display element is broken and the liquid crystal solution leaks out of the display and onto your hands, clothing etc., wash your hands or clothing immediately with soap or alcohol, holding them under running water for at least 15 minutes. If the liquid comes into contact with your eyes, please consult a doctor immediately.

Generally you should connect IT-devices only to power supply systems with separately guided protective earth conductor (PE), known as TN-S networks. Do not use PEN conductors! Please also observe the recommendations of the norm DIN VDE 0100, part 540, Appendix C2, as well as EN50174-2, §5.4.3.

Warranty

Wincor Nixdorf guarantees generally a warranty engagement for 12 months beginning with the date of delivery. This warranty engagement covers all those damages which occur despite a normal use of the product.

Damages because of

- improper or insufficient maintenance,
- improper use of the product or unauthorized modifications of the product,
- inadequate location or surroundings will not be covered by the warranty.

For further information of the stipulation look at your contract.

All parts of the product which are subject to wear and tear are not included in the warranty engagement.

Please order spare parts at the Wincor Nixdorf customer service.

Instructions for maintenance

Clean your display regularly with an appropriate surface cleaning product. Make sure that the device is switched off, connector cables are unplugged and that no moisture is allowed to get into the inside of the device.

Please observe the maintenance and cleaning instructions for each of the components. These instructions can be found in their respective chapters.

Recycling

Environmental protection does not begin when time comes to dispose of the display; it begins with the manufacturer. The compact display is manufactured without the use of CFCs and CCHS and is produced mainly from reusable components and materials.

The processed plastics can, for the most part, be recycled. Even the precious metals can be recovered, thus saving energy and costly raw materials. Please do not stick labels onto plastic case parts. This would help us to re-use components and material.

You can protect our environment by switching on your display only when it is actually needed. If possible, even avoid the stand-by-mode as this wastes energy, too. Also switch your display off when you take a longer break or finish your work.

There are still some parts that are not reusable. Wincor Nixdorf guarantees the environmentally safe disposal of these parts in a Recycling Center, which is certified pursuant to ISO 9001 and ISO 14001.

So don’t simply throw your device on the scrap heap when it has served its time, but take advantage of the environmentally smart, up-to-date recycling methods!

Please contact your competent branch or the Recycling Center Paderborn (for European countries) for information on how to return and re-use devices and disposable materials under the following mail address:

Email: info@wincor-nixdorf.com

We look forward to your mail.

Introduction

From Point-of-Sale to Point-of-Service

With the BA92/BA93/BA93W you are using an ergonomically and customer-friendly cashier's workplace.

Equipped with a sleek modern bezel free design and robust aluminum housing, the BA9x features projected capacitive (BA92, BA93 and BA93W) or resistive (BA92 and BA93) touch technology. There is also a non-touch version available for the BA92 and BA93.

The BA9x features the unique Wincor Nixdorf PanelLink2™ interface. This allows for operation of the displays via a single cable solution. In addition, the screen also offers standard interfaces such as VGA, DVI-D or USB-B. Instead of using a standard power supply with 12V DC jack, a PoweredUSB cable can be used. The display can be applied in all trade market segments like specialist retailers, department stores, self-service stores, petrol stations or in restaurants. There is indeed a great deal of scope for implementing the display.

They can be used, for example, as:

- a point-of-sale terminal
- an ordering terminal
- an information terminal
- a desk terminal.

The low-energy and flicker-free color monitor of the BA9x is a LCD in TFT-technology (Thin Film Transistor).

Therefore, it is well suited for multimedia applications as it offers brilliant color representation, an excellent contrast ratio and a high display speed.

Features at a glance

- Low footprint
- Autoscaling of the screen
- Flicker-free
- Very good contrast ratio, adjustable loudness, sharpness, width, phase, color temperature and brightness via OSD menu
- LCD TFT technology
- Digital and Analog interface
- Simple installation via plug & play feature
- Mounting VESA 100 standard
- Integrated loudspeaker
- USB interface for external devices.

About this manual

This manual informs you about everything you might need to know for the installation (software and hardware), the operation and the maintenance of your BA9x.

Same parts of this book require familiarity and experience in working with operating systems and installation and configuration procedures.

Notes in the manual are marked by this symbol.

This symbol is used for warnings.

Display overview

BA92

The TFT LCD flat panel display is a 12.1-inch flat panel display which is absolutely flicker-free. lt is designed for a resolution of max. 800 x 600 pixels. Application programs should use this resolution.

BA93

The TFT LCD flat panel display is a 15-inch flat panel display which is absolutely flicker-free. lt is designed for a resolution of max. 1024 x 768 pixels. Application programs should use this resolution.

BA93W

The TFT LCD flat panel display is a 15.6-inch wide flat panel display which is absolutely flicker-free. It is designed for a resolution of max. 1360 x 768 pixels. Application programs should use this resolution.

Touch screen per model

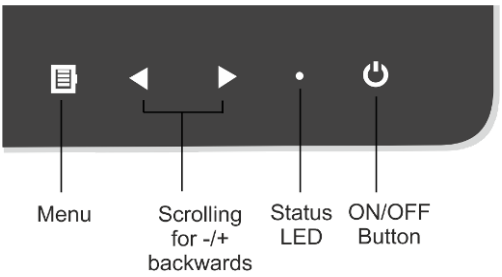
Model	Screen Size	Touch Screen
BA92*	12.1”	No Touch, Protective Glass
BA92/r-touch	12.1”	Resistive Touch
BA92/pc-touch	12.1”	Projected Capacitive Touch
BA93	15”	No Touch, Protective Glass
BA93/r-touch	15”	Resistive Touch
BA93/pc-touch	15”	Projected Capacitive Touch
BA93W/pc-touch	15.6”	Projected Capacitive Touch

* This model is not a standard option and will be offered on a project basis only.

User interfaces

Front panel (OSD)

A set of 4 buttons is located at the front panel.



Menu

Via the menu you can set the loudness, brightness, contrast and color among others.

Pressing the menu button will activate the OSD.

Depending on the selected function, a sub-menu option will be available for a selection on the same screen.

There are two ways to exit the OSD menu:

- via exit or
- wait for the OSD to time-out (saves changes and exit).

The adjustments will be saved in each way.

There are a number of parameters that can be set via the OSD menu. Please refer to the table “Parameters set via the OSD menu” for details.

Scrolling

The arrows serve for scrolling forwards or backwards in the menu items.

LED

dark	Power off
green	Power on
orange (not flashing)	Power save mode the LED lights in the standby mode
red	Out of Range

ON/OFF button

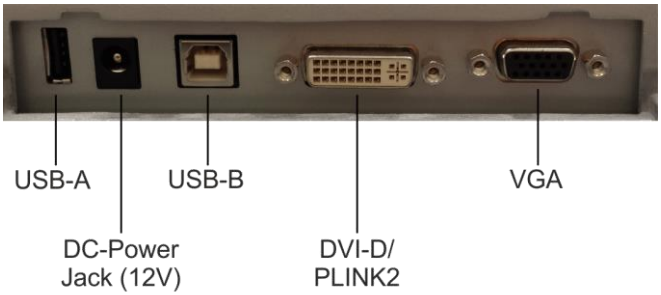
With this button you can switch the display on or off.

If the display is manually switched off, it will not wake up automatically when the system boots.

When the BA92/BA93/BA93W is connected via PLINK2™ interface to a BEETLE system, the button also switches the system on or off, provided that the system supports the feature. See section Display Settings / RMT enable/disable for details.

Connector panel

The following sockets are located under the bezel of the display:



USB- A	For external peripherals.
Power Jack	Power supply for the screen via external power supply or PoweredUSB (12V).
USB-B	USB connection to the PC system.
DVI-D/ PLINK2	DVI-D or PLINK 2 for video/data transfer between the system and the TFT display.
VGA	The VGA display is connected to the system via a 15 pin D-sub-connector.

For BEETLE systems with PLINK2 interface, a PLINK2 cable can be used to as a single wire interface to supply power, video and data signal to the display.

Only UL Listed LPS (Limited Power Source) power supplies can be used.

Integrated loudspeaker

The integrated loudspeaker is located at the bottom side of the screen.

Display settings

The BA9x display offers several settings which are available through the OSD. Below you can find a list of specific factory default settings that can be customized in order to suit the specific installation needs.

Parameters set via the OSD menu

Option	Sub-level	Description
Input Source		
	Analog Input	For analog input (VGA)
	Digital Input	For digital input (DVI/PLink2)
	Exit Sub-Menu	Back to OSD-Menu
Display Setting		
	Brightness	Use left/right to adjust Brightness
	Contrast	Use left/right to adjust Contrast
	Exit Sub-Menu	Back to OSD-Menu
Color Setting		
	Auto Color	Auto color adjustment at VGA mode only
	sRGB Settings	Standard RGB settings
	Color Temperature	Choose the color temperature listed in the sub menus
	Exit Sub-Menu	Back to OSD-Menu
Image Setting		
	Auto Adjustment	This function will adjust the image if necessary

Option	Sub-level	Description
	Image Width	Adjustment of image's width
	Phase	Regulates the sampling rate for transfer the analog amplifier into digital signals.
	Horizontal Position	Use left/right to shift the horizontal position of the image to the right or to the left.
	Vertical Position	Use left/right to shift the vertical position of the image upwards or downwards.
	Exit Sub-Menu	Back to OSD-Menu
Tools Menu		
	Factory Reset	Back to default settings. NOTE: No reset of Image Setting (Screen width, phase, horizontal/vertical position)
	Sharpness	Upgrades the contour of a blurred text by a lower solution.
	OSD Time Out	Adjustment of time interval (scale from 1 up to 16 seconds) for displaying the OSD.
	Language	Language selection for OSD.
	Exit Sub-Menu	Back to OSD-Menu
Features Setting		
	Speaker Volume	Use left/right to adjust the speaker volume
	Power Button Behavior	The power button can be locked/unlocked with this option
	Ambient Light Sensor	The ALS can be enabled/disabled with this option
	Presence Sensor	The Presence Sensor can be enabled/disabled with this option
	Wincor Logo Lighting	The logo backlight can be enabled/disabled with this option

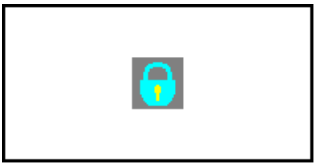
Option	Sub-level	Description
	USB Hub During Standby [1]	The USB Hub can be enabled/disabled during standby
	RMT [2]	RMT function provided thru PLINK2 option can be enabled/disabled
	Exit Sub-Menu	Back to OSD-Menu
Exit OSD-Menu		End OSD-Menu

[1] Selection available up to Firmware ver 2.0x.
[2] Selection available from Firmware ver 2.10 onwards.

OSD lock/unlock

Per default the OSD is accessible to the end user, allowing user to make changes to the display settings. The OSD can be locked by pressing and holding the menu button for approx. 6 seconds. The display shows a message on the screen that the OSD is now locked.

OSD lock



OSD unlock

RMT enable/disable

The RMT feature allows the display's power button to act as the power button of the BEETLE system. This feature is only available when the display is connected to a BEETLE system using a PLINK2™ interface cable. The mode of operation depends on the settings of the BEETLE BIOS as well as on the display settings. For details please consult the table below.

BEETLE BIOS Settings	BA9x Settings	BEETLE System and Display State	Result of pressing the Display power button
RMT enabled	RMT enabled	OFF	System starts booting; Display switches on by system.
		ON	System starts shutdown; Display switches off when system shutdown is completed.
	RMT disabled	OFF	System starts booting; Display switches on by system.
		ON	System no reaction; Display switches off [1].
RMT disabled	RMT enabled	OFF	System no reaction; Display remains off.
		ON	System no reaction; Display remains on.
	RMT disabled	OFF	System no reaction; Display remains off.
		ON	System no reaction; Display switches off.

[1] For FW 2.10 onwards. For information about the power button behavior of previous FW versions, please contact a Wincor Nixdorf sales representative.

Power button – lock/unlock

The power button is unlocked by default. The user can switch the display on and off discretely, independent of the connected host system. If the power button is locked, the user cannot manually switch the display on or off.

If RMT is enabled, power button will initiate RMT signal to host system but will not switch the display off.

Ambient Light Sensor (Automatic Brightness Control)

The ambient light sensor is switched OFF by default. If switched to ON, it takes control of the display brightness settings and tries to automatically adjusts the brightness in reaction to the surrounding brightness. This feature reduces the power consumption of the display.

Presence sensor

The presence sensor is switched OFF by default. If switched to ON, it detects user interaction (touch operation) with the display. If the sensor does not detect an operator for more than 3 min, the display brightness is reduced to its minimum to allow for power saving. The sensor detects movement or presence in the range of 30cm-50cm in front of the screen.

USB HUB during standby (up to FW 2.05)

In its default state the USB hub is switched to OFF during standby. In this case a touch event will not wake the display from sleep. Please set the setting to ON if the display is required to wake up from sleep by pressing the touch screen. For FW2.10 onwards, USB Hub is always ON during standby and the OSD selection no longer available.

DDC Compliant Interface

The above settings can be made manually using the OSD buttons. Some settings can be done via a DDC-CI compliant software interface.

The DDCcontrol tool software is available for specific operating systems and OSD functions only. Please consult the technical information of DDCcontrol tool for more information.

Settings made via DDCcontrol tool have priority over manual settings!

Touch technologies

Projected Capacitive Touch Screen

General information

The use of projected-capacitive touch screens has all the benefits a normal capacitive touch screen has:

- fast processing of touch information
- high sensitivity (use with hands, conductive pencils and also with thin gloves)
- high resolution
- improved legibility and display brightness due to optimal light transmission

In addition the technology of projected-capacitive touch screens is characterized by significant higher robustness and stability, because the active touch surface – different from common capacitive touch screens which were used until now - is located on the back side of the touch screen. Thus the active touch surface is not touched directly anymore and therefore will not wear off by normal use. As most of the surface contaminations do not cause an interference of the touch screen, this technology can be used in public or under severe environmental conditions.

Instructions for using the Touch Screen

The touch screen responds to the lightest touches. The touch with only one finger is like the use of the left mouse button. The use of the touch screen with two fingers generates a zoom if the fingers are brought together or pulled apart. With a circular motion of the fingers the element on the display can be rotated. This function must be supported by either the operating system or by the application.

Cleaning instructions

Always turn off the system before cleaning

The glass surface of your Touch Screen should be cleaned with a mild, abrasive free, commercially available glass cleaning product. All pH neutral materials (pH 6 to 8) are good for cleaning. Cleaners with pH values 9 to 10 are not recommended. Cleaning with water and isopropyl alcohol is possible as well. Do not use sol vents containing acetic acid. Use a soft, fine-meshed cloth to clean the surface. Dampen the cloth slightly and then clean the screen.

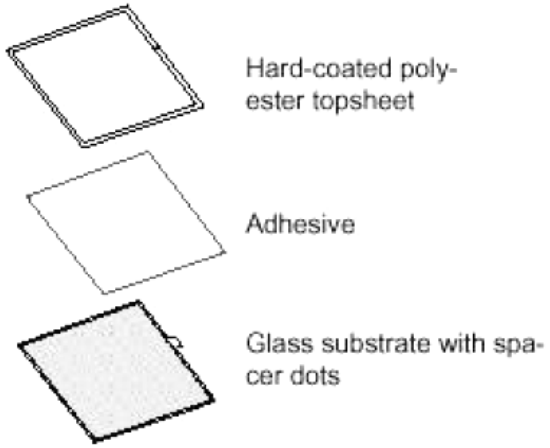
A wrong maintenance may cause damages to the screen, which are not covered by guarantee or warranty.

Resistive Touch Screen

General information

The resistive TFT Touch Screen is constructed by a hard-coated polyester top sheet that is overlaid on a conductively coated glass layer.
Voltage is applied to the top sheet. As the user touches the screen, the top sheet compresses into contact with the glass layer, and current flows to the four corners in proportion to the distance from the edge. The controller then calculates the position of the finger or stylus, based on the current flow. Because the controller derives both the “X” and “Y” touch coordinates from the stable glass layer, the accuracy and operation of the touch screen is unaffected by damage to the top sheet caused by extended use or neglect.

Construction of the Resistive Touch Screen



Instructions for using the Touch Screen

Touching the touch screen has the same effect as clicking the left mouse button. You only need to apply a little pressure with the fingertip.
In this resistive process not only fingertip contact is recognized. The screen does react in any way if touched, for example, with a stylus. The recommended **material for a stylus** is polyacetal. The stylus should have a minimum spherical radius of 0.8 mm and contain no sharp edges or burrs that may cause damage to the top sheet.

Cleaning instructions

Always turn off the system before cleaning

The surface of your Touch Screen should be cleaned with a water-based solvent or a non-abrasive cleaner. Do not use sol vents containing acetic acid or methylene chloride. Use a soft, fine-meshed cloth to clean the surface. Dampen the cloth slightly and then clean the screen.

A wrong maintenance may cause damages to the screen, which are not covered by guarantee or warranty.

Modular options

Magnetic Swipe Card Reader

There are two types of MSR module to choose from, the standard ISO 3-track or the dual-head JIS1/JIS2. Card reading is bi-directional.

The MSR module can be mounted either on the right or left side of the display.

How to operate

Run the swipe card through the slit of the swipe card reader from top to bot tom in a quick and steady movement. Make sure that the magnetic strip is to the right. When using swipe cards, the following should be observed:

- Swipe cards should never be allowed to come into contact with liquids.
- Swipe cards should not be bent or folded in any way.
- Swipe cards should not be allowed to come into close contact with a magnetic field.

Swipe cards should only be inserted in the top of the specially designed slit of the reading device. If the card is inserted in another place, this could damage the reading head.

Cleaning instruction

In order to guarantee good reading results, the swipe card reader should be cleaned from time to time. This is carried out by using a special cleaning card that can be purchased from Wincor Nixdorf.

For details on software application programming, please refer to BA9x MSR/Waiter Lock Programming Manual.

Waiter Lock

Each transaction is correctly assigned to the personnel by using the magnetic key. The magnetic keys are available in 10 different colors. The magnet keys are waterproof, shatterproof and by the 16-digit key number also safe for clear identification

How to operate

The operation of the system is very simple, the key is placed onto the magnetic probe (see figure). The key is held magnetically to the probe and transmits the data by an electrical USB interface.
The readout of the data may be integrated easily in a software application.

Cleaning instruction

In order to guarantee good reading results, the magnetic probe should be

cleaned from time to time with a soft cloth to remove dust.

For details on software application programming, please refer to BA9x MSR/Waiter Lock Programming Manual.

RFID/NFC Reader

The BA9x RFID/NFC can be attached on either side of the BA9x series of touch monitors.

A set of application software running on a PC will control this device through USB connectivity. This connectivity also supplies operating power to the device.

How to operate

For effective detection, place the card (tag) over the sensor of the reader and approximately 10 mm away.

Cleaning instruction

In order to guarantee good reading results, the sensor should be cleaned from time to time with a soft cloth to remove dust.

For details on software application programming, please refer to BA9x RFID/NFC Reader Programming Manual.

Fingerprint Reader

The Fingerprint Reader module for BA9x module delivers a secure login and identification process for the retail sector. Via biometric analysis of fingerprints, it offers a perfect authentication for securing access into EPOS systems, especially in those retail environments that are accessible and open.

How to operate

Users simply place a finger on the reader window and the reader quickly and automatically captures and encrypts the fingerprint image before sending it to the Identity Engine for verification.

Cleaning instruction

Dust or coarser particles may settle on the window that can reduce the image recognition quality, in the worst case, scratches on the soft silicon coating on the window can render the optical reader unusable. Therefore, periodic cleaning is necessary to remove accumulated particles.

Use normal cellophane to pick the dust particles by lightly pasting it on the window and then peeling it off slowly. Throw it away and use a new piece each subsequent time until the window is cleared of all noticeable particles.

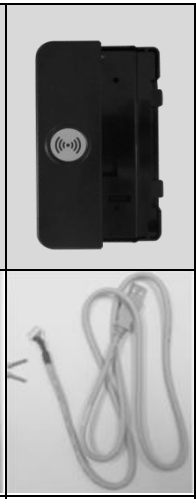
Mounting peripherals

Unpack the parts and check whether the delivery matches the details of the delivery note.

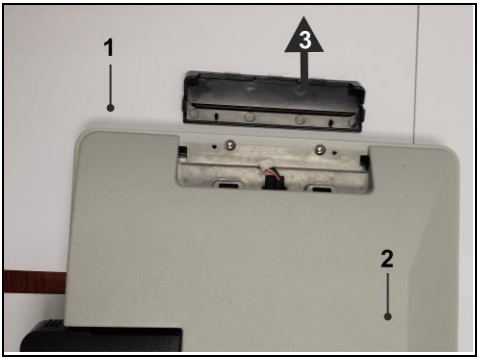
MSR, Waiter Lock, RFID/NFC and Fingerprint Reader

The Magnetic Swipe Card Reader, Waiter Lock, RFID/NFC Reader and Fingerprint Reader can be mounted on either the right or the left side of the screen.

The kit contains the module with holder, a cable and two screws. The cable is for the left mounting position (seen from the front).

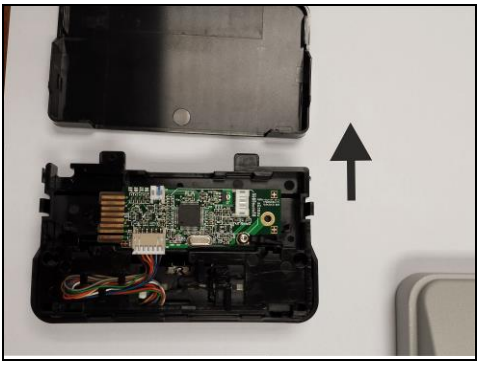
			
Magnetic Swipe Card Reader with holder, cable and two screws	Waiter Lock with holder, cable and two screws	RFID/NFC Reader with holder, cable and two screws	Fingerprint Reader with holder, cable and two screws

Mounting on the right side (seen from the front)

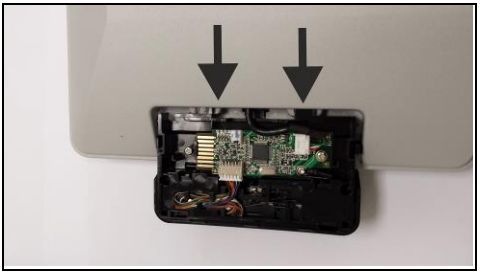


1. Place a piece of protection sheet on a flat surface e.g. a table.
2. Lay the display face down on the protection sheet.
3. Remove right side cover at the back of the display, exposing one end of a connecting cable.

4. Release the catch on one side of the peripheral's holder.



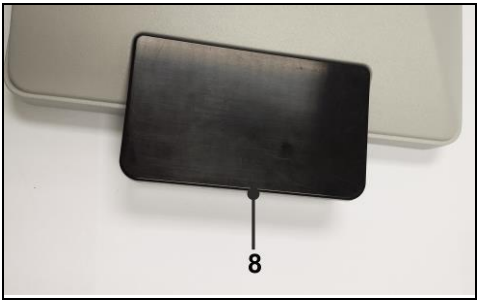
5. Remove the back cover of the holder.



6. Locate the holder to the side of the display uncovered in step 3.

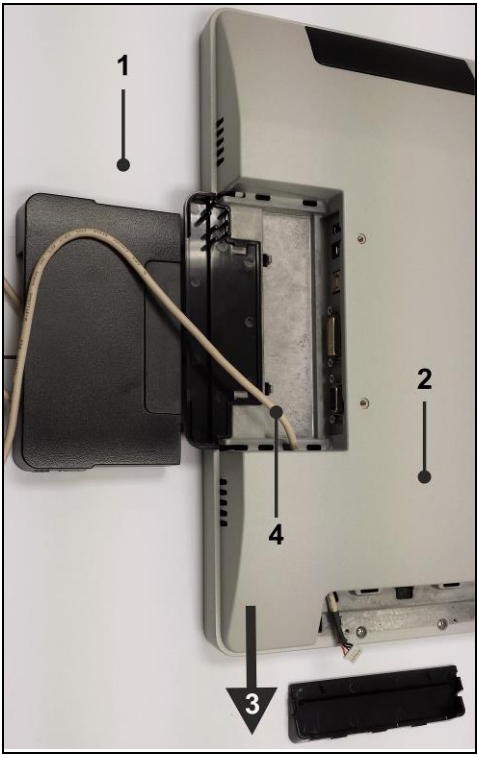
7. Route the connecting cable mentioned in step 3, into the holder and connect to the connector on the holder

8. Use the two screws supplied to secure the holder to the display.



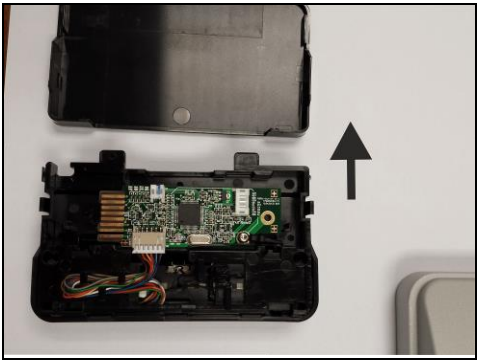
9. Place in the back cover of the peripheral. The mounting is complete.

Mounting on the left side (seen from the front)

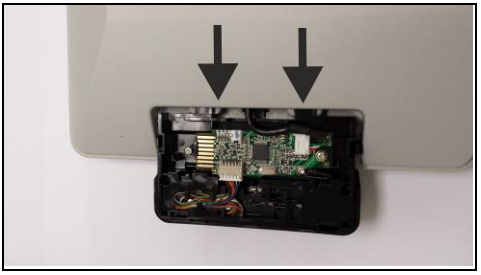


1. Place a piece of protection sheet on a flat surface e.g. a table.
2. Lay the display face down on the protection sheet.
3. Remove left side cover at the back of the display.
4. Route in the supplied cable as shown.

5. Release the two catches on the side of the peripheral's holder.

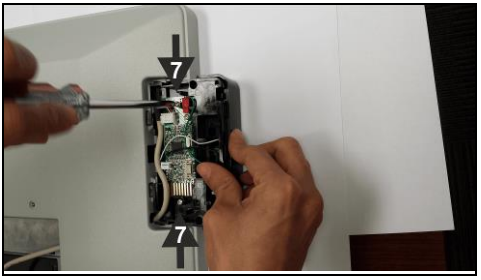


6. Remove the back cover of the holder.

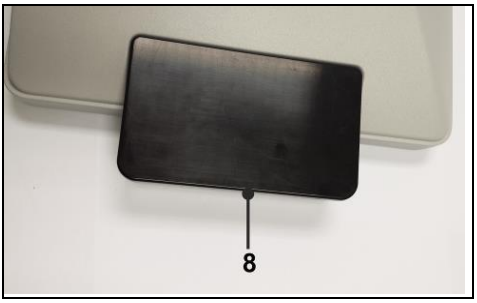


7. Locate the holder to the side of the display uncovered in step 3.

8. Route the connecting cable mentioned in step 3, into the holder and connect to the connector on the holder



9. Use the two screws supplied to secure the holder to the display.



10. Place in the back cover of the peripheral. The mounting is complete.

Initial setup

Unpacking and checking the delivery unit

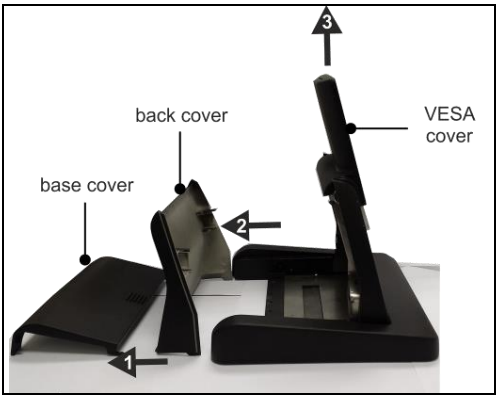
Unpack the parts and check to see whether the delivery matches the information on the delivery note. The delivery comprises the respective screen module. Data cables, necessary for operation, can be ordered separately. Lf damage has occurred during shipping or if the package contents do not match the delivery note, immediately inform your Wincor Nixdorf sales outlet.

Transport the device only in its original packaging (to protect it against impact and shock).

Installing the display to a stand

Take the stand and the monitor out of the packaging. For installation you will need a Torx screwdriver to loosen and tighten the screws!

Preparing the stand



From the stand:

1. Remove the base cover.
2. Remove the back cover*.
3. Remove the VESA cover.

*To avoid damage to the back cover of the stand, be careful of how you would remove it.

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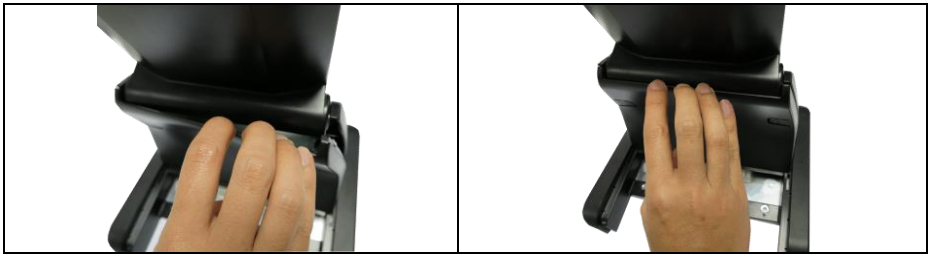
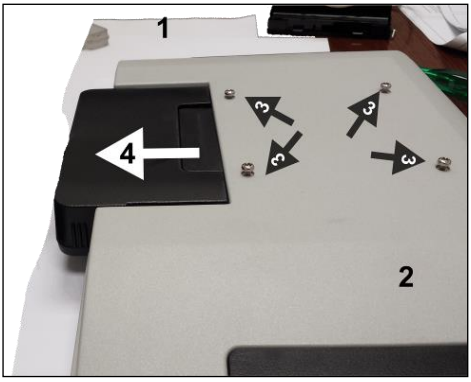


Preparing the display

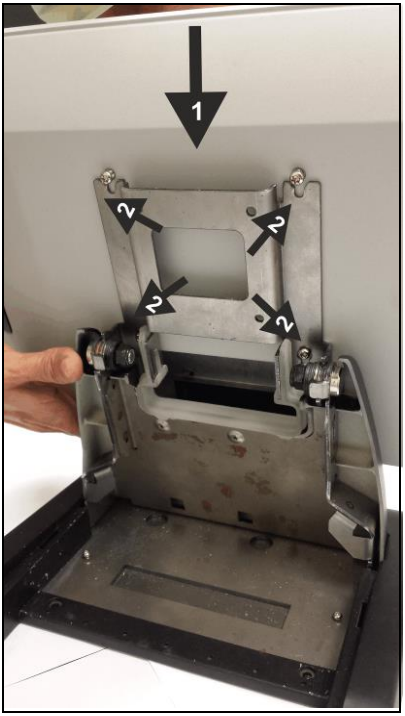


1. Place a piece of protection sheet on a flat surface e.g. a table.
2. Lay the display face down on the protection sheet.
3. Tighten the four screws half way through.
4. Remove the cable cover at the bottom of the display.

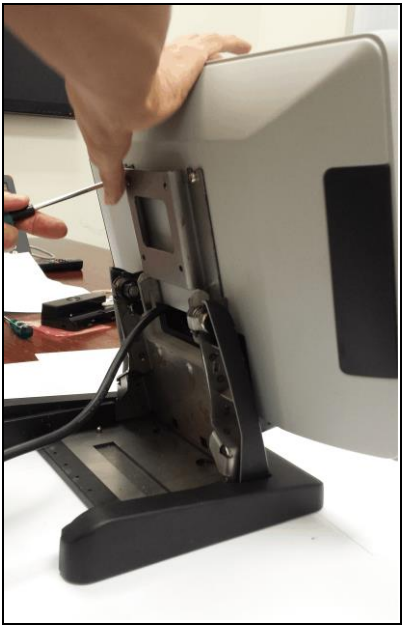
5. Plug in cable.

6. Place back the cable cover at the bottom of the display.
7. Pull the cable through the opening of the cable cover.

Installing the stand



1. Bring the display into a position above the stand.
2. Locate the screws (that were previously tightened halfway through) to the four holes on the frame of the stand.



3. Tighten the four Torx screws to secure the display to the stand.

4. Place in the VESA cover.

5. Place in the back cover, routing the cable through the bottom.

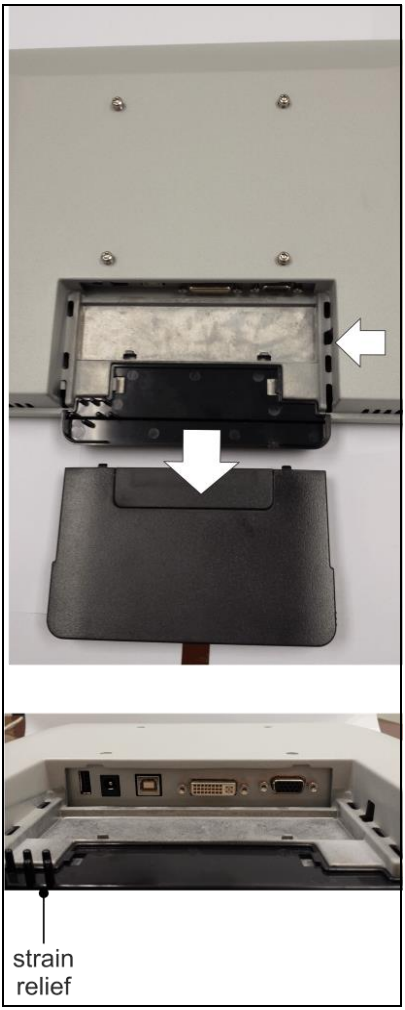
6. Place in the base cover. The installation is complete.

When uninstalling the stand always make sure that all cables are disconnected.

Connecting the display

Before connecting cables switch off the system and disconnect it from the main supply.

For display mounted on a stand



1. Push down the cable cover to release it and slide it out of the guide (see arrows). The connector panel is now accessible.

2. Move the DVI or PLINK2 cable through the holder and plug the connector into the jack. Fix the connector by rotating clockwise the knurled screws.

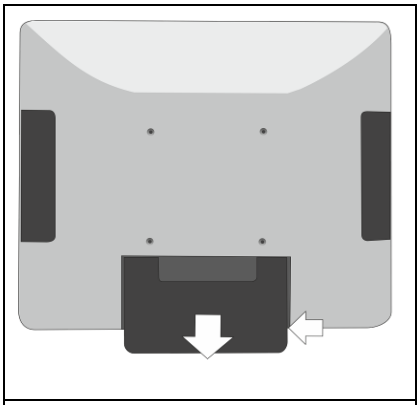
   Lay the necessary cables inside (for example power cable and USB B) and connect the plug.

Make sure that cables that are not secured by a lock are loosely inserted into the strain relief.

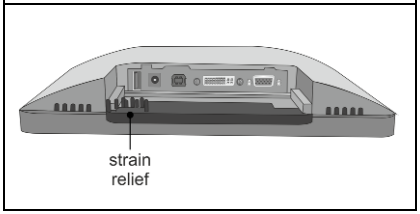
3. Replace the cable cover.
4. Remove the small cover on the cable cover.
5. Pull out the cable through the opening.

For display mounted on a on pole

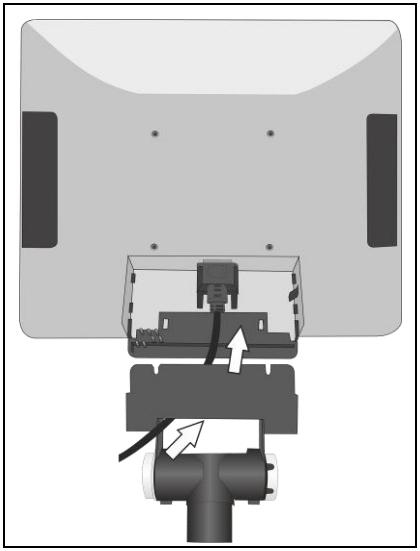
Pole Mount “bottom mounted”



1. Push down the cable cover to release it and slide it out of the guide (see arrows).



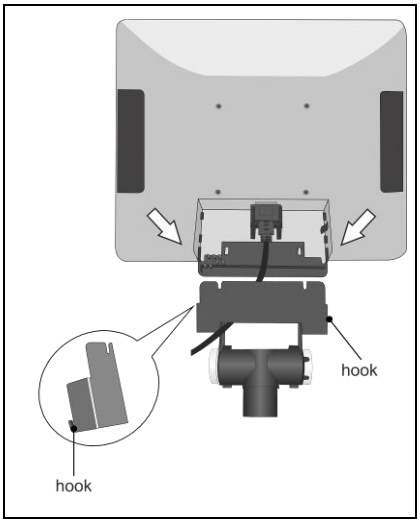
The connector panel is now accessible.



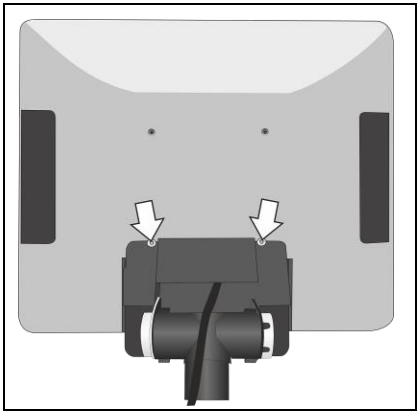
2. Move the DVI or PLINK2 cable through the holder (see arrows) and plug the connector into the jack. Fix the connector by rotating clockwise the knurled screws.

   Lay the necessary cables inside (for example power cable and USB-B) and connect the plug.

Make sure that cables that are not secured by a lock are loosely inserted into the strain relief.

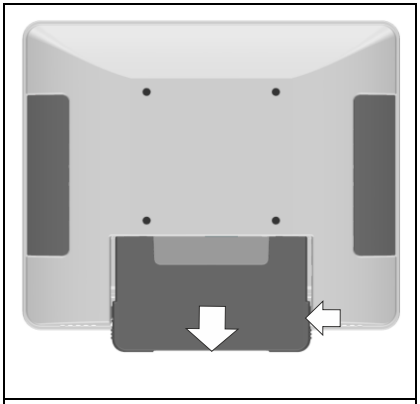


3. Insert the lower hooks into the designated position (see arrows).

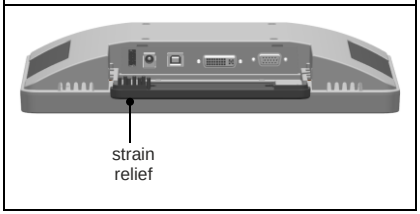


4. Fix the holder with two screws.

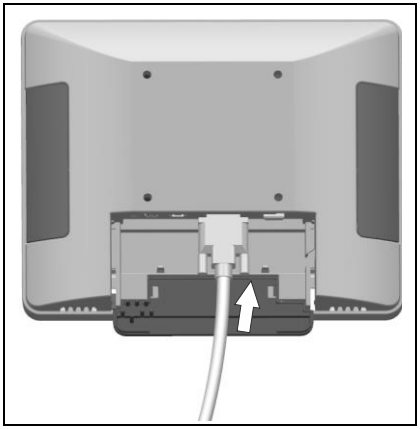
Pole Mount with VESA Pole Mount



1. Push the cable cover to release it and slide it out of the guide (see arrows).



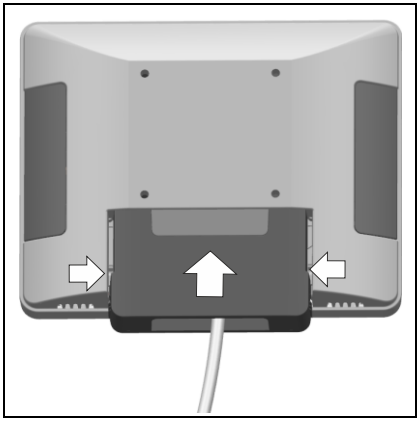
The connector panel is now accessible.



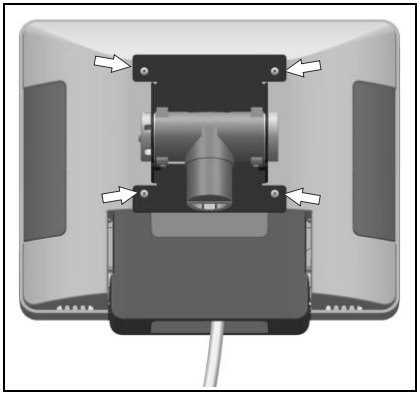
2. Plug the DVI or PLINK2 connector into the jack. Fix the connector by rotating clockwise the knurled screws.

   Lay the necessary cables inside (for example power cable and USB-B) and connect the plug.

Make sure that cables are not secured by a lock, are loosely inserted into the strain relief.



3. Slide in the cable cover. Ensure that it catches at the sides (see arrows).

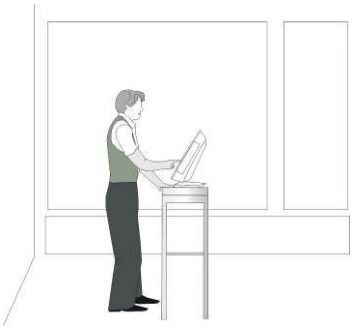


4. Fix the VESA 100 holder with four screws.

   The installation of the VESA 100 pole mount is complete.

Ergonomic Terminal Workplace

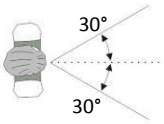
Please observe the following when setting up your terminal workplace:



Avoid direct glaring and reflective glaring. Use the screen only in a controlled luminance surounding. Install the device with a viewing directi on that is parallel to the windows.

Avoid reflective glaring caused by electric light sources.

permitted range of vision



preferred range of vision

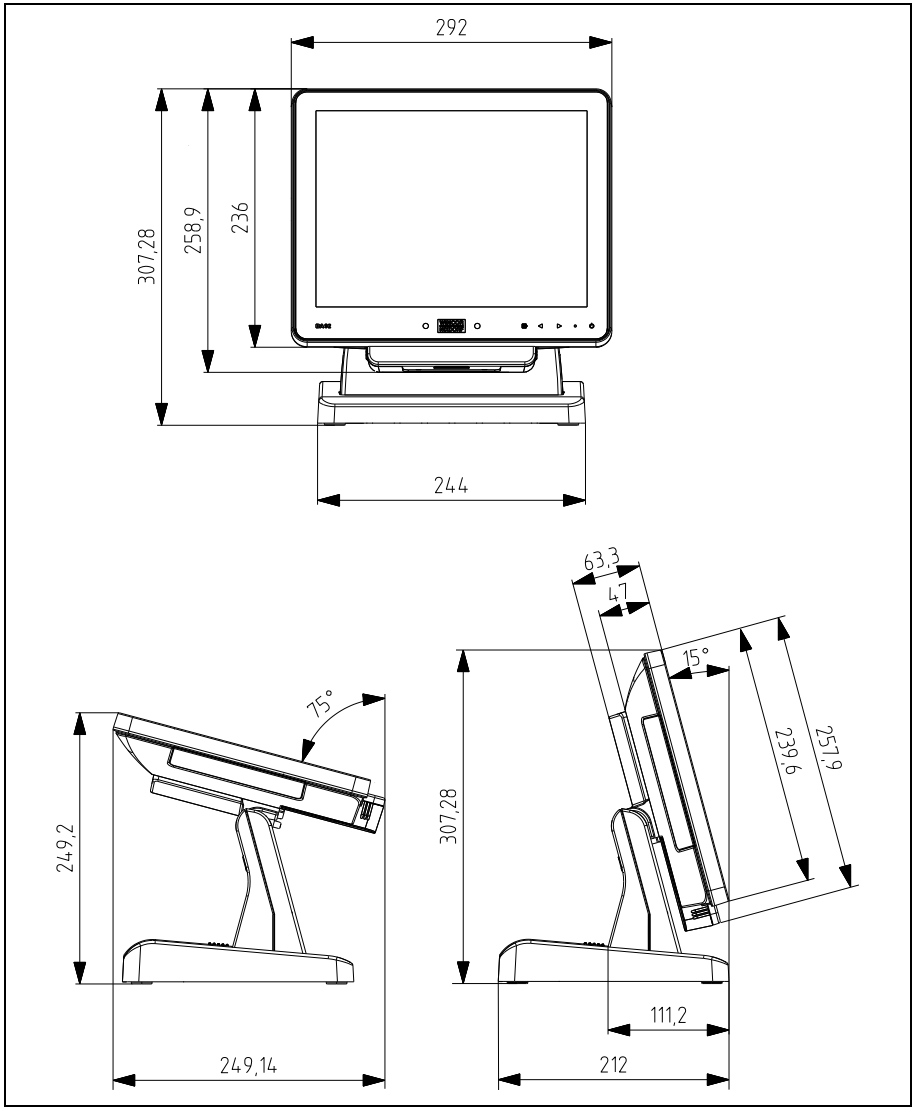
Position the screen within a preferred and permit ted range of vision, so that you can look vertically onto the screen.

Technical data

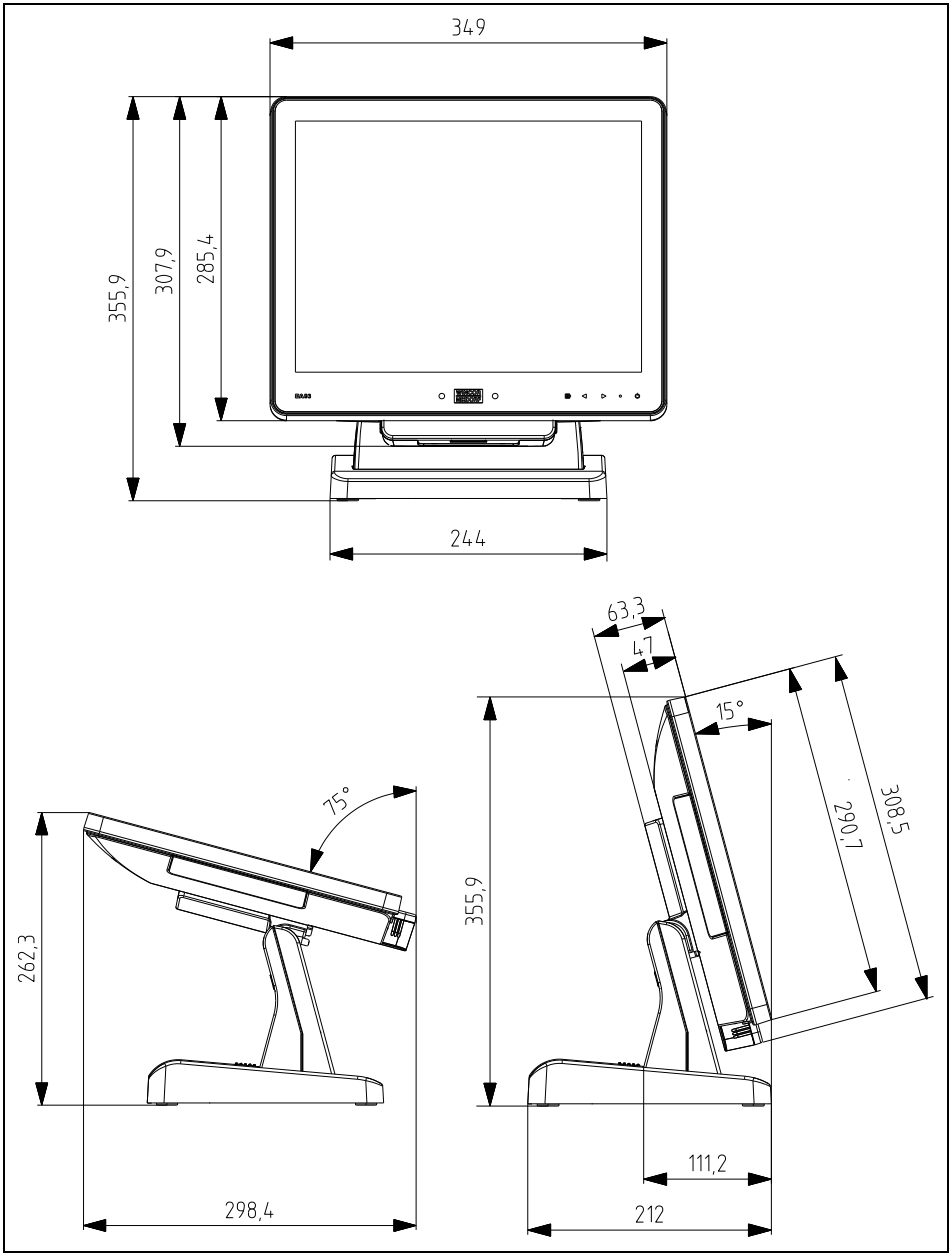
Model		BA92	BA93	BA93W
Dimensions	Diagonal screen	12.1“ (30.7 cm)	15" (38.1 cm)	15.6“ (39.6 cm)
	Active screen (mm) horizontal x vertical	246x184.5	304x228	344.2x193.5
	Cable length	up to 5m		
	Display housing width x height x depth (mm)	292x257.9x47	349x308.5x47	394.8x271.2 x51.2
Weight	without base	2.0 kg	2.9 kg	3.2 kg
	with base	4.5 kg	5.4 kg	5.7 kg
Climate class		IEC 721 3/3 Class 3K3		
Operating temperature		+ 5 °C to + 40 °C		
Humidity		5% to 85% Absolute humidity 1g/m^3 to 25g/m^3 Condensation is not permitted		
Frequencies	Horizontal (KHz)	37.9	48.3	47.7
	Vertical (Hz)	60	60	60
Native resolution	Horizontal (Pixel)	800	1024	1360
	Vertical (Pixel)	600	768	768
	Color depth	Up to 16.7 Mio.		
Pixel format (approx. in mm)		0.31x0.31	0.30x0.30	0.25x0.25
Graphic interface	internal	LVDS		
	external	PLINK2, DVI-D, VGA		
Reading angle	right/left	80 °/ 80 °	80 °/ 80 °	85 °/ 85 °
	top/bottom	60 °/ 80 °	80 °/ 80 °	80 °/ 80 °
Brightness	Projected Capacitive	400 cd/ m^2	310 cd/ m^2	270 cd/m^2
	Resistive	335 cd/ m^2	260 cd/ m^2	-
	Non-Touch	400 cd/ m^2	310 cd/ m^2	-
Contrast	Projected Capacitive	800:1	800:1	500:1
	Resistive	800:1	700:1	-
	Non-Touch	800:1	800:1	-
Backlight		LED		
Power consumption	Typical	9.85 W	11.95 W	14.60 W
	Maximum	10.50 W	12.80 W	15.50 W

Dimensions (mm)

BA92



BA93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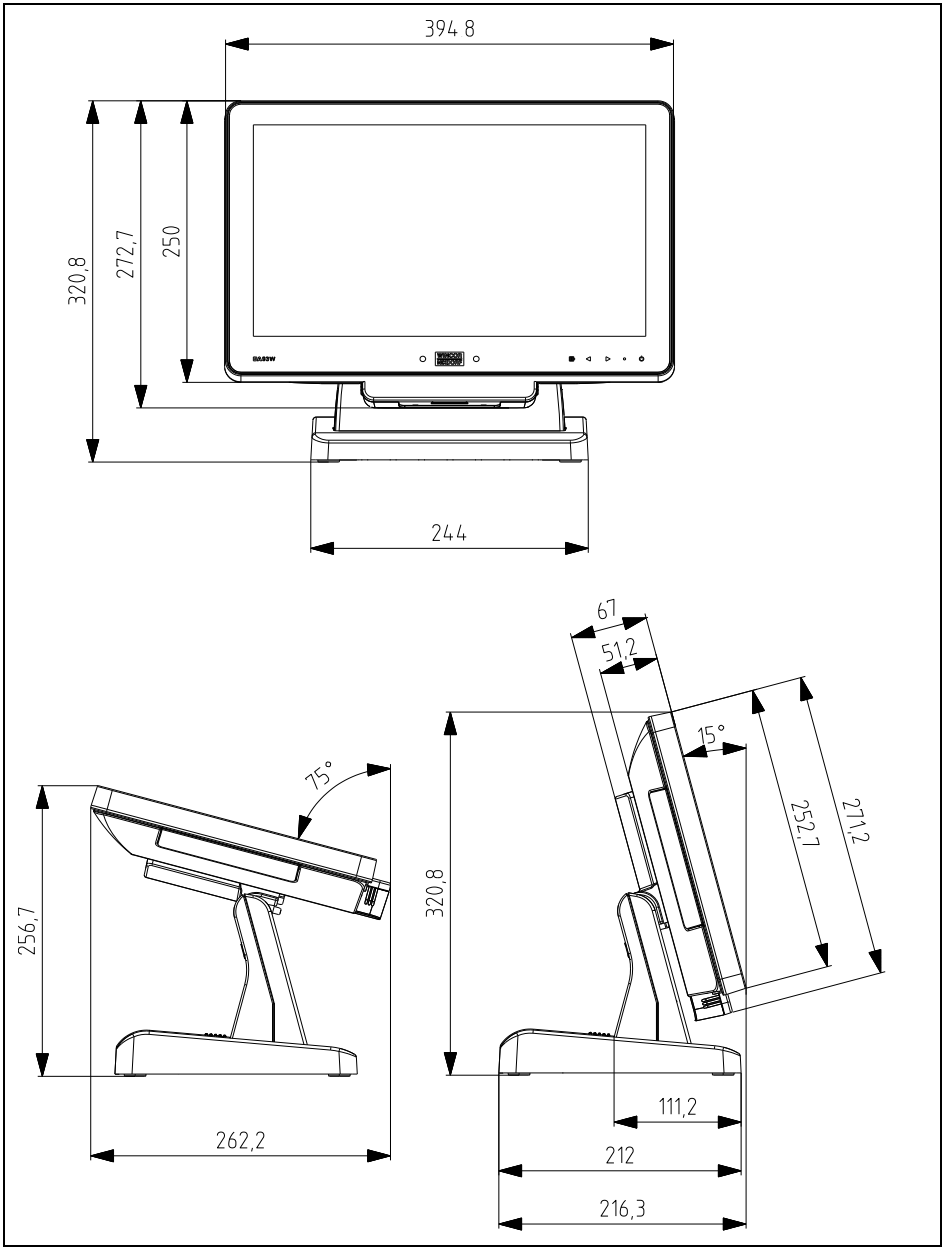
290,7
355,9
75°
262,3
298,4
111,2
212

BA93W


394.8
320,8
272,7
250
244
67
51,2
15°
75°
320,8
256,7
252,1
211,2
262,2
111,2
212
216,3

Projected Capacitive Touch Screen

Resolutions	Horizontal	2048
	Vertical	2048
Touch Technology		Projected Capacitive
Surface		Anti-glare
Data transfer		USB
Multi Touch		10-points (Gestures Supported)

Resistive Touch Screen

Resolutions	Horizontal	2048
	Vertical	2048
Touch technology		5 wire Analog Resistive
Surface		Anti-glare
Data transfer		USB

MSR module

Power supply	USB Bus powered
Connection	USB 2.0
Protocol	HID 1.1 (Human Interface Device)
Number of tracks	up to 3
Coding of swipe card reader	according ISO 7811-2 or JIS B 9561
Reading speed	10 to 140 cm/sec.
Height x Width(Screen mounted) x Depth	125 x 36 x 34 mm
Weight	approx. 138 g

Waiter Lock (iButton) module

Power supply	USB Bus powered
Connection	USB 2.0
Protocol	HID 1.1 (Human Interface Device)
Device supported	Olitronic GmbH magnetic key, 99-L-01 (DS1990A)
Physical Interface	1-Wire, serial
Height x Width(Screen mounted)x Depth	125 x 36 x 34 mm
Weight	approx. 107 g

RFID/NFC module

Supported Standards	ISO/IEC 15693 ISO/IEC 14443 Type A ISO/IEC 14443 Type B
RF Operating Frequency	13.56 MHz
Host Interface	USB 2.0 Full speed
	HID 1.11 Usage Page: 0xFF45, Usage: 0X2200
Rated Voltage	5.0 V
Rated Current	250 mA
Operating Temperature	0 º C to 40 º C
Device Firmware Upgrade	Firmware upgradable via DFU interface
Middleware support	JavaPOS 1.13
Operating Systems	Windows 7, Linux
Certification	CE & FCC
Height x Width(Screen mounted) x Depth	125 x 36 x 34 mm
Weight	Approx. 102 g

Fingerprint module

Technology	Optical scanning
Pixel Resolution	512 dpi
Scan data	8-bit grayscale
Image distortion	< 1%
Image Transfer speed	6 fps
Interface	USB 2.0 full-speed
Supply Voltage	5V +/-5%
Rated current	120mA
Operating Temperature	5 º C up to 40 º C
Operating Humidity	20% to 80% non-condensing
Supported Operating System	Windows 7 Pro POSReady 7 Windows 8.1 Pro Windows 8.1 Industry POSReady 2009 WNLPOS2 WNLPOS3
Height x Width(Screen mounted) x Depth	125 x 36 x 34 mm
Weight	115 g

Supported resolution

Scaling to any display resolution other than recommended panel native resolution (highlighted with **) will result in lower display quality like uneven character/spacing.

BA92

Resolution		Refresh Rate	Horizontal Sync		Vertical Sync	
			Frequency	Polarity	Frequency	Polarity
VGA	640 x 480	60Hz	31.5 kHz	Negative	59.9 Hz	Negative
SVGA **	800 x 600	60Hz	37.9 kHz	Positive	60.3 Hz	Positive
XGA	1024 x 768	60Hz	48.4 kHz	Negative	60.0 Hz	Negative

BA93

Resolution		Refresh Rate	Horizontal Sync		Vertical Sync	
			Frequency	Polarity	Frequency	Polarity
VGA	640 x 480	60Hz	31.5 kHz	Negative	59.9 Hz	Negative
SVGA	800 x 600	60Hz	37.9 kHz	Positive	60.3 Hz	Positive
XGA **	1024 x 768	60Hz	48.4 kHz	Negative	60.0 Hz	Negative
SXGA	1280 x 1024	60Hz	64.0 kHz	Positive	60.0 Hz	Positive

BA93W

Resolution		Refresh Rate	Horizontal Sync		Vertical Sync	
			Frequency	Polarity	Frequency	Polarity
VGA	640 x 480	60Hz	31.5 kHz	Negative	59.9 Hz	Negative
SVGA	800 x 600	60Hz	37.9 kHz	Positive	60.3 Hz	Positive
XGA	1024 x 768	60Hz	48.4 kHz	Negative	60.0 Hz	Negative
HD	1280 x 720	60Hz	44.8 kHz	Negative	59.9 Hz	Positive
SXGA-	1280 x 960	60Hz	60.0 kHz	Positive	60.0 Hz	Positive
SXGA	1280 x 1024	60Hz	64.0 kHz	Positive	60.0 Hz	Positive
WXGA **	1360 x 768	60Hz	47.7 kHz	Positive	60.0 Hz	Positive
WXGA+	1440 x 900	60Hz	55.9 kHz	Negative	59.9 Hz	Positive
HD+	1600 x 900	60Hz	56.0 kHz	Negative	59.9 Hz	Positive
WSXGA+	1680 x 1050	60Hz	65.3 kHz	Negative	60.0 Hz	Positive

Abbreviation index

CE	European Symbol of Conformity
cUL	Canadian Registration DIN(Recognized by UL)
DIN	Deutsche Industrie Norm (German Institute for Industrial Standards)
DVI-D	Digital Visual Interface Digital
IEC	International Electro technical Commission
ISO	International Organization for Standardization
LCD	Liquid Cristal Display
LED	Light Emitting Diode
LVDS	Low Voltage Differential Signal
MSR	Magnetic Stripe card Reader
OSD	On Screen Display
POS	Point Of Sales
SVGA	Super Video Graphics Array
TFT	Thin Film Transistor Technology (LCD Technology)
USB	Universal Serial Bus
VDE	Verband Deutscher Elektrotechniker (German Electricians Association)
VESA	Video Electronics Standard Association
VGA	Video Graphics Array
XGA	Extended Graphics Array

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